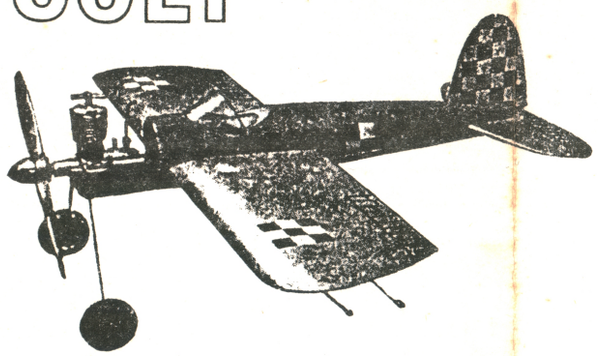
VERON

KWIK - FIX

COLT TRAINER



BUILDING INSTRUCTIONS

The COLT has been designed as a universal control-line Trainer with a complete set of fully prefabricated parts for ultra-quick assembly in a minimum of time. It is suitable for any small diesel .5 to 1.49 c.c. with integral fuel tank such as "SUPER MERLIN," "SABRE "SPITFIRE," "SABRE," MILLS .75 and 1.3, etc.

For rapid assembly in a few hours, study both these written instructions and the pictorially detailed sequence until complete familiarity with the procedure is understood.

All you will need is some fine sand-paper for finishing prior to doping and colouring ; a pair of pliers and small screw-driver ; a tube of Britfix quick-drying balsa cement ; a handbrace and a $\frac{3}{32}$" drill for the engine bolt holes ; also a few modelling pins. Colour dopes to choice and a bottle of fuel proofer.

STAGE 1.

Insert the two hardwood motor beams in the slot in the fuselage base and ensure that the balsa block when set between them is a close and accurate fit. Any adjustment can be made with fine garnet and a hardwood block by gently sanding. See Diagram 1. DO NOT YET cement the beams and block in place.

STAGE 2.

Locate the engine intended complete with its fuel tank. If required, trim the beams with balsa knife to accommodate the extra width of certain crankcases. The engine should be as far back on the beams as possible. With a sharp pointed pencil mark on the beams the position of the four crankcase securing bolts. Drill through these marks with a handbrace or vertical drill and $\frac{3}{32}$" twist-drill. At all times check that the holes are vertical. See Diagram 2.

STAGE 3.

Locate the four bolts through the beams. Secure their heads with a short length of 22 s.w.g. wire soldered across their lots — see sketch. This is to prevent them turning when tightening down the engine later. Cut away the balsa in the fuselage under the bolt positions to accommodate the heads and permit the beams to sit flush in the engine bay. See sketch.

IMPORTANT. Double coating of all jointing surfaces with cement is essential. Rub cement well into the wood grain of any surface where jointing will take place and allow to dry. Then apply a second coat of cement and complete the joints. Thus complete the engine mount, beams flush with the front of the model, balsa block flush with the rear of the 4" beams.

STAGE 4.

The wing is supplied complete with aerofoil section and requires only to be smoothed with fine garnet. Gently bevel the edges of the tips but do not taper, then these being tough will absorb any knocks on the wing tips due to bad landings, etc.

STAGE 5.

Measure accurately the centre of the wing and mark with pencil and ruler the centre line — see sketch. Also mark on the fuselage base the eventual location of the wing leading edge $2\frac{1}{2}$" from the front of the beams. Check by temporarily locating the fuselage top.

STAGE 6.

Double coat with cement the underside of the wing and top-side of the fuselage where jointing will take place ; then apply a second coat of cement and centrally locate the wing, pinning to secure whilst setting.

STAGE 7.

Check the fuselage top for accurate fit over both wing and lower fuselage. If satisfied, cement in place and pin to secure. Keep fin and tail slots free of cement.

STAGE 8.

Two small squares of $\frac{1}{32}$" ply are cut $\frac{1}{8}$" × $\frac{1}{8}$" and drilled $\frac{3}{32}$" in their centres. Cement one above and one below the $\frac{3}{32}$" fulcrum bolt hole already drilled through the wing.

Thread a washer onto one 8 B.A. bolt and locate through the fulcrum bolt hole, head to the top. Add another washer and a securing nut See fulcrum assembly section drawing.

Bend the ends of the two lengths of 20 s.w.g wire at right angles for $\frac{1}{4}$" and insert through outer holes in fulcrum plate from the top Temporarily secure fulcrum with one nut.

STAGE 9.

Double coat both sides of the stabilizer with cement where contact with the fuselage slot will be made. Then apply a second coat and locate stabilizer in position. Pin to secure squarely whilst drying. Cut tape supplied into eight 1" lengths. Cement to trailing edge of stabilizer in pairs, one on top surface and one below — see Diagram 9. Rub cement well into tape, applying three coats if necessary.

Whilst drying, thread an 8 B.A. bolt and washer down through hole in ply elevator then locate aluminium control horn and secure with nut. Lock nut and bolt head with dab of cement after cutting off excess length of bolt.

STAGE 10.

Bend the tapes alternatively up and down in pairs and cement to ply elevator to make simple cross-over hinges as in Diagram 10. Do not make the hinges too loose but check for freedom of movement whilst drying. Re-cement and rub well in with finger tips.

STAGE 11.

Bend one end of 18 s.w.g. control wire to a right angle $\frac{1}{4}$" long. Loosen fulcrum and insert control wire through outer hole. Tightening the fulcrum nut will keep fulcrum plate in close proximity to wing sufficient to prevent control wire from slipping out. Secure this fulcrum nut with another nut tightened over it (see sketch in Diagram 8).

With the elevator neutral and the fulcrum neutral or square to the fuselage, measure the length of the 18 s.w.g. control wire required and bend to pass through the aluminium control horn. This length is about $10\frac{1}{4}$" and the rear bend is at right angles to the first and about $\frac{1}{4}$" long. The control wire should lie along the fuselage and should not therefore drop out of the central horn. When complete, double check for freedom of movement and correct alignment when both are at neutral.

Make a tail skid of the 2" length of 18 s.w.g. wire and stick right into balsa on underside of tail-bay Secure with a dab of cement.

STAGE 12.

The two 20 s.w.g. control wires are both swept back slightly — approximately $\frac{1}{2}$" at a position $1\frac{1}{2}$" from the tip. Mark their positions lightly in pencil then cut two slots with the point of a balsa knife $\frac{1}{32}$" wide × $\frac{3}{8}$" to accommodate two $\frac{1}{32}$" ply guides $\frac{3}{8}$" × $\frac{1}{2}$" with a $\frac{3}{32}$" hole. Thread these onto the control wires and then cement them firmly in the slots on the underside of the wing tip.

The sweptback control wires help to keep the model pointed slightly 'out' of the flight circle and so maintain the control lines tight.

STAGE 13.

The outer ends of the wing control wires are now looped with round nose pliers or made square around a pair of ordinary pliers as per the sketches in Diagram 13. Ensure these are evenly made with the fulcrum at neutral. For extra safety, bend the ends of the two control wires through the fulcrum back to form a complete hook thus to prevent them displacing. Note that the rear wire is the elevator 'UP' line.

STAGE 14.

The basic structure of the model is now complete and must be finished with colouring and proofer before adding engine and under-carriage.

Give the whole model two, three or four coats of Britfix banana oil, clear dope and/or coloured dope sufficient to fill the grain of all parts of the model. Allow each coat to dry completely and sand gently with fine garnet between coats. The prototype colour scheme is black underside of the fuselage and in the engine bay, red top fuselage with aluminium wing and tail surfaces.

Now give the whole model a coat of fuel proofer such as "AERO-GLAS," particularly around the engine bay. Allow to harden over-night. Cut the transfer sheet supplied into pieces suitable for decorating the fin and small checkered squares on wing and fuselage sides. Transfers MUST BE PUT OVER the fuel-proofer, NOT vice-versa and are best "fixed" with transfer varnish.

The looped ends of the undercarriage wires are located over the engine mounting bolts, struts to the front, not the rear, as in Diagram 14. Position the engine, securing with double nuts to prevent loosening with vibration. Tighten thoroughly.

Check that each wheel is free running and that they are correctly aligned. Put a drop of oil on each axle.

STAGE 15.

A piece of 20/1000" celluloid is supplied for the windshield. With compasses set to $1\frac{1}{2}$" radius, mark and cut out as in Diagram 15. Curl by rolling carefully around a small bottle. Locate in place by pinning at its corners and run a rim of cement carefully around the edge in contact with the fuselage. It may be found best to scrape away the fuel proofer where necessary. Leave in the pins until set.

Use a "VEROGRIP" control line handle. If you are a beginner to control line flying, this handle can be adjusted with its clips close together to give easier control of your model until you are familiar with it.

The lines should be stout nylon fishing line or the "Light-Laystrate" stranded control line wire. These should be 25 to 35 feet long, shorter length for the small engines, greater length for the bigger engines. Both lines must be of exact equal length between attachments either end. These are best made like paper clips from 20 s.w.g. piano wire ; the commercial clips are too soft to use with safety.

Check that when the "VEROGRIP" handle is held vertically upright, with the lines tight, that the fulcrum and elevator are level. Check also that the line to the top of the handle (painted another colour) is connected to the rear control wire, so that wrist 'back' gives elevator 'up,' giving instinctive control of 'wrist up' for 'model up,' 'wrist down' for 'model down.'

STAGE 16. FLYING

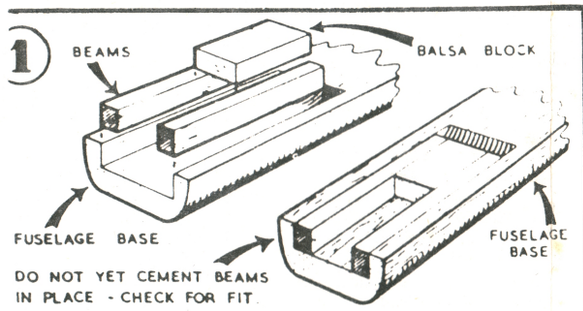
Flying must be carried out over very smooth grass or ground in an open space clear of spectators, telegraph wires, electric power cables and trees. DO NOT fly in public parks unless the local bye-laws permit it.

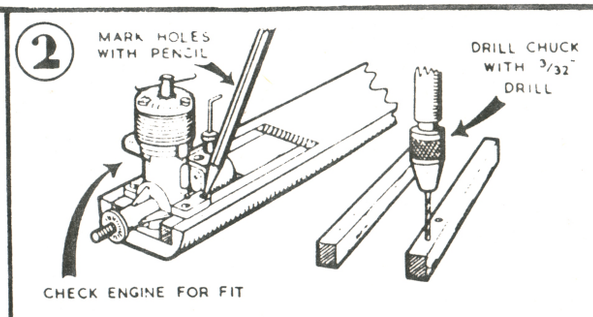
A friend's help will be needed. Use the propeller recommended by the manufacturer of the engine used. Start your motor and when at its best running speed, richen the needle setting very slightly. Let your friend hold the model, pointing downwind, as in Diagram 16. Pick up the handle, hold upright, arm outstretched. Slightly tension the lines and check that the elevator is dead in line with the tailplane. Signal your friend to release the model and then let the model fly itself. Use your control handle to correct any nose up or down tendency.

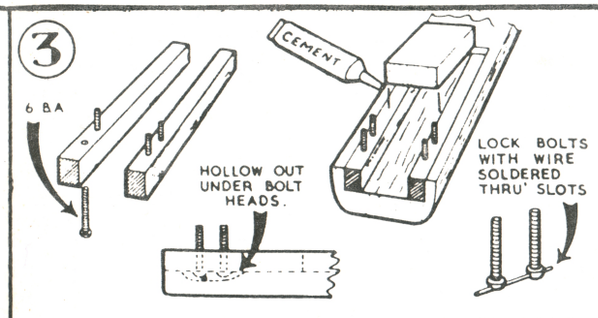
From then on, experience will be your best teacher. Do not run your engine too slow at first ; you will have far better control with full power. When the motor cuts, put the nose down slightly to maintain flying speed and just 'hold' the model off the ground whilst gliding until she settles.

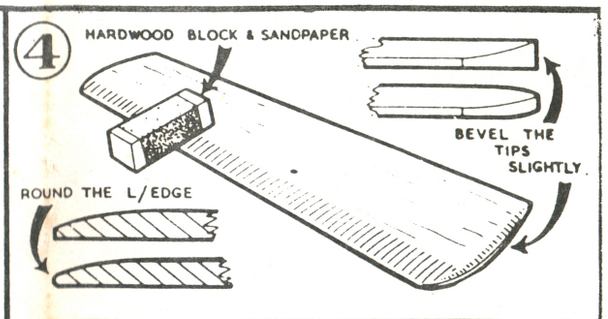
Soon you will be able to fully handle your model doing circuits, zooms, climbs, dives, glides and landing.

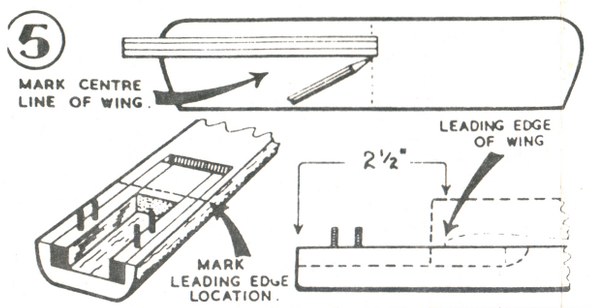
When experienced, fly with your friends two in a circle, with paper streamers attached to your model for combat flying, attempting to manoeuvre for position to clip each other's streamers with your propellers. This is ideal training for the exciting team racing later when fully experienced.

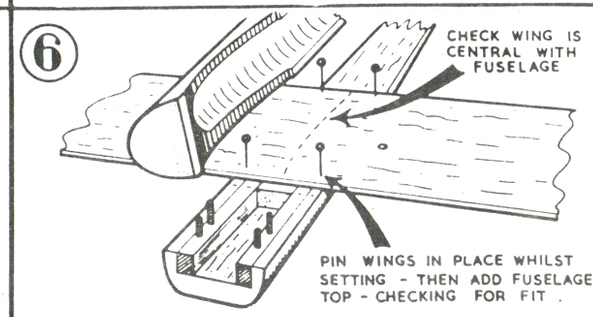


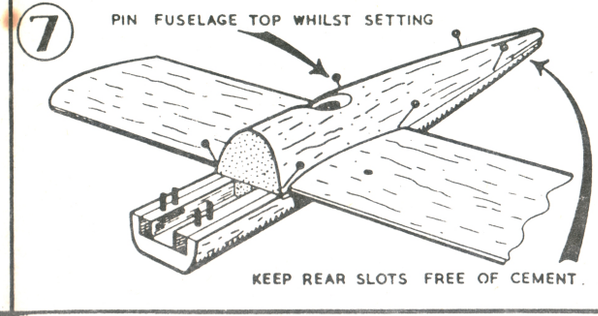


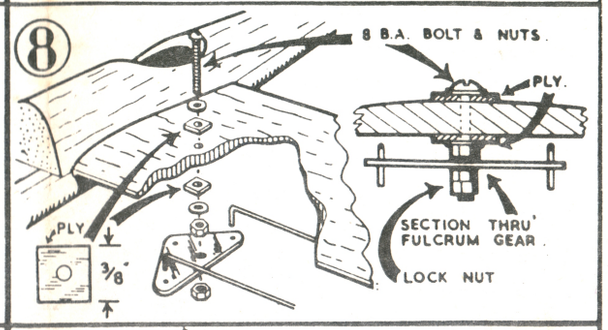


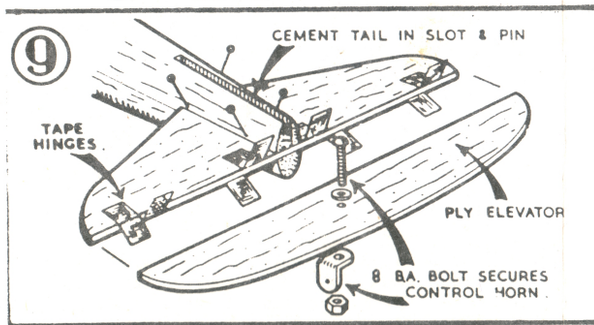


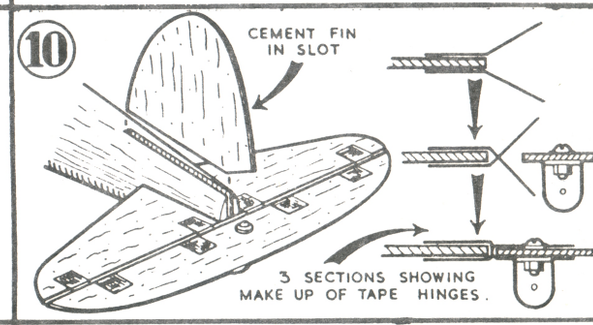


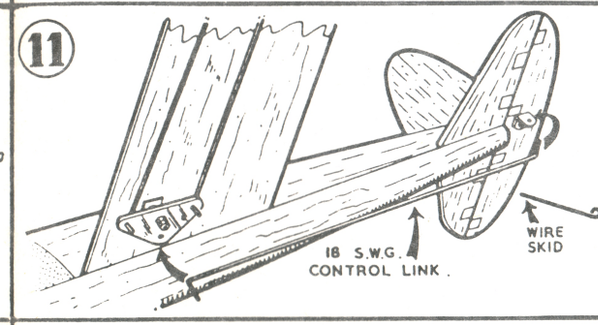


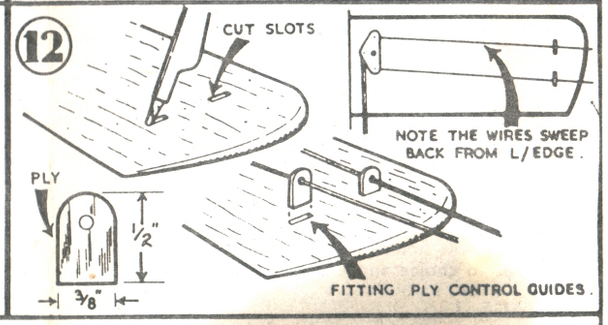


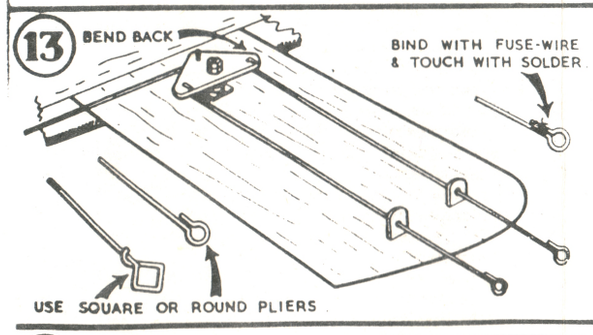


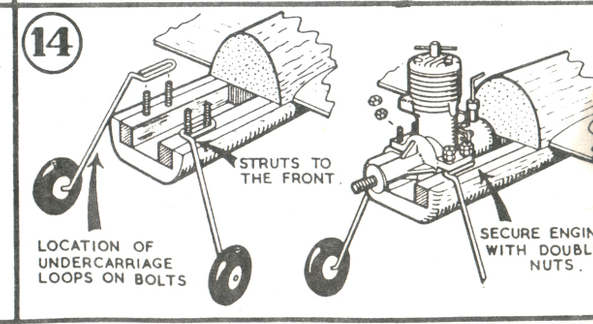
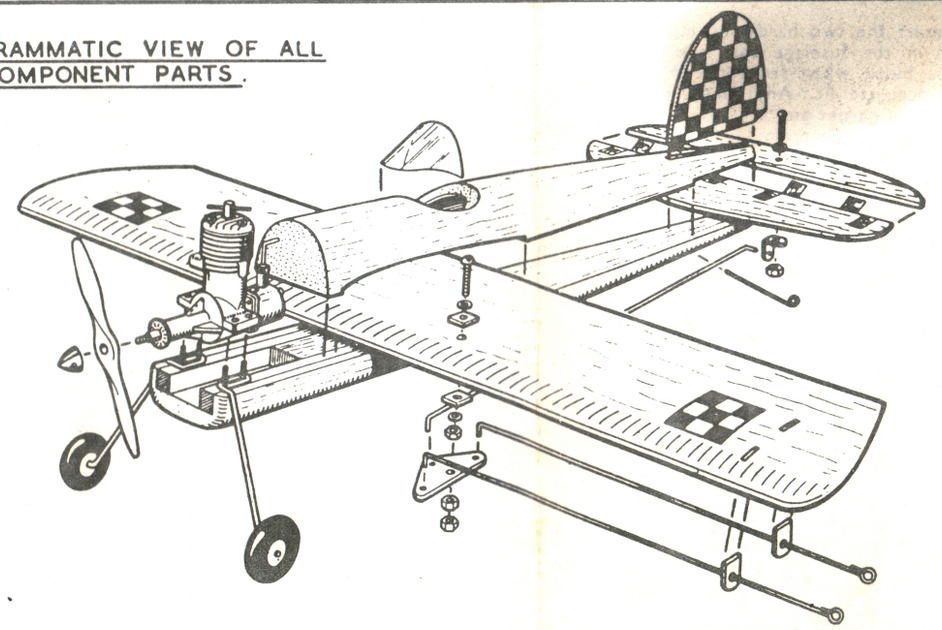
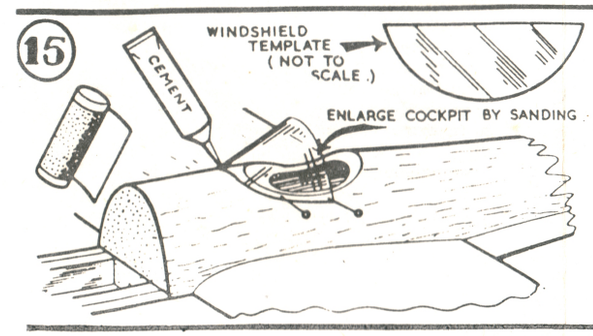
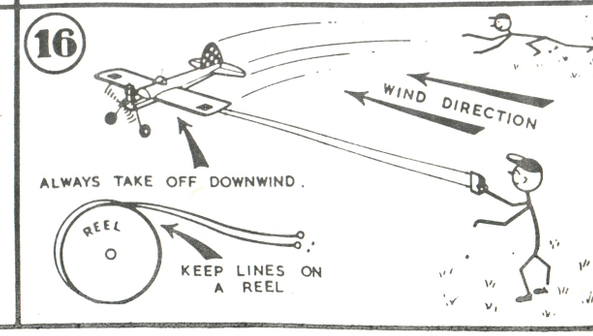












DIAGRAMMATIC VIEW OF ALL COMPONENT PARTS.